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Insomnia

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Abstract

There is growing interest in insomnia both from the perspective of recent advances in clinical management as well as research aimed at elucidating its pathophysiology. This theoretical overview of insomnia describes the negative impact, etiological considerations, and pharmacological and behavioral treatments for the disorder, with an emphasis on areas receiving increased research attention. Insomnia, the most prevalent sleep disorder, affects 10–15% of the general population. In population-based studies severe insomnia has been shown to last for a median of 4 years. In addition, insomnia has a significant negative impact on an individual's work, physical, and social performance as well as overall quality of life. Furthermore, the economic cost of insomnia related to lost productivity, work-related accidents, absenteeism, and health-care costs are enormous. There is increasing evidence linking the precipitation of insomnia to stress, and converging evidence from cognitive, endocrine, neurological, and behavioral domains provide clear evidence for hyperarousal in insomnia. However, there remains no consensus regarding the specific etiological mechanisms of this disorder. Although the pathophysiology of primary insomnia remains an enigma, numerous treatments both pharmacological and behavioral have been developed and found to be efficacious in controlled studies. Despite the wide availability of pharmacological treatments and increased knowledge of behavioral interventions, the vast majority of individuals with insomnia do not appear to be receiving adequate treatment. The inadequate treatment of insomnia leads to several important and under-recognized consequences including subsequent development of psychiatric disease and increased substance use.

Keywords: - Insomnia introduction, Prevalence, Types, Risk factors, Effects, Treatments, Conclusion

Introduction

Insomnia is a common sleep complaint that occurs when you have one or more of these problems:

- You have a hard time initiating sleep.
- You struggle to maintain sleep, waking up frequently during the night.
- You tend to wake up too early and are unable to go back to sleep.
- You sleep is nonrestorative or of poor quality. These symptoms of insomnia can be caused by a variety of biological, psychological and social factors. They most often result in an inadequate amount of sleep, even though the sufferer has the opportunity to get a full night of sleep. Insomnia is different from sleep deprivation, which occurs when an individual does not have the opportunity to get a full night of sleep. A small percentage of people who have trouble sleeping are actually short sleepers who can function normally on only five hours of sleep or less. There are two types of insomnia – primary and secondary. Primary insomnia is sleeplessness that cannot be attributed to an existing medial, psychiatric or environmental cause (such as drug abuse or medications). Secondary insomnia is when symptoms of insomnia arise from a primary medical illness, mental disorders or other sleep disorders. It may also arise from the use, abuse or exposure to certain substances[1]

Nowadays, a high percentage of the population in modern society suffers from various kinds of sleep disturbances, due to the impact of increased physiological and socio-cultural stress factors. One of the most common sleep complaints, which the human being has suffered from since ancient times, is insomnia. Although its literal meaning is a total lack of sleep, in clinical and practical terms insomnia has come to refer to a difficulty in initiating and/or maintaining sleep, or nonrestorative, non-refreshing sleep. In a survey conducted in the general population of different countries, the prevalence of insomnia was estimated to be about one third of the adult population. In particular, an epidemiological study conducted in Los Angeles, USA, found that 32% of the population had a current complaint of insomnia. In a study conducted in Mannheim, Germany, the prevalence of insomnia was 31%, and in Upper Bavaria - 29%. In Italy, 13% of people rarely or never slept well and 19% reported complaints of insomnia. An epidemiological survey of the French population, based on DSM-IV criteria for the definition of insomnia, demonstrated that 29% reported at least one sleep problem three times per week for a month, whereas only 9% had two or more sleep problems and were classified as "severe insomniacs". The 1991 National Sleep Foundation Survey in conjunction with the Gallup Organization conducted telephone interviews with 1000 Americans and found that 36% of them suffered from some type of insomnia; approximately one in four adults reported occasional insomnia whereas 9% claimed that their sleep difficulty occurred on a chronic basis. It should be noted that all these surveys were based on self-reported assessments of insomnia. An epidemiological study based' on polysomnographic recordings is still lacking. These studies have shown that the prevalence of insomnia is multifactorial depending on sex and age, socio-professional category as well as on coexisting physical and/or psychiatric diseases and may vary between countries.[2] This kind of sleep disturbance can affect people of all ages, especially the socioeconomically disadvantaged group. In addition, it has been shown that the complaint of insomnia increases markedly with age and is more frequent in women than in men. In general, about 30-40% of adults indicate some level of insomnia within any given year, and about 10 to 15% indicate that the insomnia is chronic and/or severe. In contrast, the percentage of subjects consulting for insomnia is limited. Only about one in four patients with insomnia has ever spoken to a physician about their sleep problem. Moreover, they do this during a visit intended for another health problem. The Gallup Study in 1995 found that only 5% of insomniacs had visited a doctor specifically to discuss their sleep problem, and only 21% had ever taken medication for sleep.

Insomnia is not only disturbed sleep. It can be serious enough to induce several changes in daytime functioning, leading to a number of adverse consequences for health and safety. Accordingly, insomnia tends to be considered as a sleep difficulty at night with daytime consequences. The consequences of insomnia experienced by patients are not uniform. Insomnia has a decisive influence on health either directly - with respect to the individual's well-being or indirectly - through accidents caused by insufficient sleep. Insomnia can also produce a massive adverse effect on the quality of life, with poor performance at work, memory problems, impaired concentration, moodiness and a lack of promotions. Dramatic differences were found in the quality of insomniacs' lives as compared to those without sleep related problems.[3]

Prevalence[4]

- About 30 percent of adults have symptoms of insomnia
- About 10 percent of adults have insomnia that is severe enough to cause daytime consequences
- Less than 10 percent of adults are likely to have chronic insomnia

Types[5]

Adjustment insomnia:[6]

This is also called acute insomnia or short-term insomnia. It is usually caused by a source of stress and tends to last for only a few days or weeks. Epidemiologic studies indicate that the one-year prevalence of adjustment insomnia among adults is likely to be in the range of 15-20%. Adjustment insomnia can occur at any age, although establishing a relationship between a particular stress and sleep disturbance may be difficult in infants. Adjustment insomnia is more common in women than men and in older adults than younger adults and children

Behavioral insomnia of childhood:[7]

Two primary types of insomnia affect children. Sleep-onset association type occurs when a child associates falling asleep with an action (being held or rocked), object (bottle) or setting (parents' bed), and is unable to fall asleep if separated from that association. Limit-setting type occurs when a child stalls and refuses to go to sleep in the absence of strictly enforced bedtime limits.
Approximately 10-30% of children are affected by this condition

Idiopathic insomnia:[8]

An insomnia that begins in childhood and is lifelong, it cannot be explained by other causes. Information suggests that this condition is present in approximately .7% of adolescents and 1.0% of very young adults
Inadequate sleep hygiene:
This form of insomnia is caused by bad sleep habits that keep you awake or bring disorder to your sleep schedule. This condition is present in 1-2% of adolescents and young adults. This condition affected 5-10% of sleep-clinic populations.

Insomnia due to drug or substance, medical condition, or mental disorder:[9]

Symptoms of insomnia often result from one of these causes. Insomnia is associated more often with a psychiatric disorder, such as depression, than with any other medical condition. Surveys suggest approximately 3% of the population has insomnia symptoms that are caused by a medical or psychiatric

condition. Among adolescents and young adults, the prevalence of this form of insomnia is slightly lower. 2% of the general population is affected by this type of insomnia. Approximately 3.5% of all sleep-center patients are affected by this condition.

Paradoxical insomnia:[10]

A complaint of severe insomnia occurs even though there is no objective evidence of a sleep disturbance. The prevalence in the general population is not known. Among clinical populations, this condition is typically found in less than 5% of patients with insomnia. It is thought to be most common in young and middle-aged adults.

Psychophysiological insomnia:[11]

A complaint of insomnia occurs along with an excessive amount of anxiety and worry regarding sleep and sleeplessness. This condition is found in 1-2% of the general population and 12-15% of all patients seen at sleep centers. It is more frequent in women than in men. It rarely occurs in young children but is more common in adolescents and all adult age groups

Risk Groups[12]

- A high rate of insomnia is seen in middle-aged and older adults. Although your individual sleep need does not change as you age, physical problems can make it more difficult to sleep well.
- Women are more likely than men to develop insomnia.
- People who have a medical or psychiatric illness, including depression, are at risk for insomnia.
- People who use medications may experience insomnia as a side-effect.

Effects[13]

- Fatigue
- Moodiness
- Irritability or anger
- Daytime sleepiness
- Anxiety about sleep
- Lack of concentration
- Poor Memory
- Poor quality performance at school or work
- Lack of motivation or energy
- Headaches or tension
- Upset stomach
- Mistakes/accidents at work or while driving Severe daytime sleepiness typically is an effect of sleep deprivation and is less common with insomnia. People with insomnia often underestimate the amount of sleep they get each night. They worry that their inability to sleep will affect their health and keep them from functioning well during the day. Often, however, they are able to perform well during the day despite feeling tired.

Treatments[14]

Cognitive behavioral therapy (CBT):[15]

CBT can have beneficial effects that last well beyond the end of treatment. It involves combinations of the following therapies:

- Cognitive therapy: Changing attitudes and beliefs that hinder your sleep
- Relaxation training: Relaxing your mind and body
- Sleep hygiene training: Correcting bad habits that contribute to poor sleep
- Sleep restriction: Severely limiting and then gradually increasing your time in bed
- Stimulus control: Going to bed only when sleepy, waking at the same time daily, leaving the bed when unable to sleep, avoiding naps, using the bed only for sleep and sex

Over-the-counter products:[16]

Most of these sleep aids contain antihistamine. They can help you sleep better, but they also may cause severe daytime sleepiness. Other products, including herbal supplements, have little evidence to support their effectiveness.

Prescription sleeping pills:[17]

Prescription hypnotics can improve sleep when supervised by a physician. The traditional sleeping pills are benzodiazepine receptor agonists, which are typically prescribed for only short-term use. Newer sleeping pills are nonbenzodiazepines, which may pose fewer risks and may be effective for longer-term use.

Unapproved prescription drugs:[18]

Drugs from a variety of classes have been used to treat insomnia without FDA approval. Antidepressants such as trazodone are commonly prescribed for insomnia. Others include anticonvulsants, antipsychotics, barbiturates and nonhypnotic benzodiazepines. Many of these medications involve a significant level of risk.

PHARMACOLOGICAL TREATMENT[19]

Current hypnotic drugs target neurotransmission in the ascending reticular activating system (ARAS), interrupting the wake signal. The main pharmacological effects of the currently available hypnotic drugs in Brazil are:[20]

Histamine 1 receptor antagonism;

Serotonin 2A and 2C receptor agonism;

Gamma-aminobutyric acid A receptor agonism - selective or not;

Melatonin receptor agonism.

Additionally, noradrenergic, and acetyl-cholinergic antagonism also play a role, albeit of lesser importance, in the hypnotic effect. Gabapentinoid drugs, that inhibit voltage-dependent calcium channels are used off-label to treat insomnia. Hypocretin system antagonist drugs are available in other countries, with promising results.[21]

WHAT'S NEW ABOUT "OLD" HYPNOTICS?[22]

Benzodiazepines (BZDs) were initially marketed in 1960. In 1963 diazepam was launched, and remained the main benzodiazepine for decades. Around 1977, BZDs became the most prescribed drug class in the

world. BZDs also allowed physicians to decrease barbiturate use, with a safer pharmacological, profile BZD increases the effect of GABAA, the main inhibitory neurotransmitter system in the central nervous system (CNS).

With increasing knowledge about BZDs, it became clear that BZD side effects could harm patients, especially with long-term use and for the elderly. Abuse and dependence, falls and fractures are well-established BZD related side effects. Association with dementia and mortality with BZD use has been described, but no cause-effect relationship has yet been established.

Since end of the 1990s, the new benzodiazepine receptor agonists (BzRA) have dominated the market for the pharmacological treatment of insomnia. In the following decade, these drugs were released in Brazil, represented by zolpidem, zopiclone and eszopiclone. These BzRAs act as selective GABAA receptors on subunits α1 (zolpidem) and α1 + α2 (eszopiclone).

Expectations of lower risks of falls and fractures, abuse and dependence were largely unfulfilled. Reports of car accidents caused a new FDA alert about the use of BzRA. Occurrences of disturbed behavior at emergency departments are also frequent. There continues to be a lack of information regarding association of BzRAs and dementia.[23]

BzRA are mostly used as sleep-inducing drugs, with an erroneous idea of "no risk", leading to indiscriminate prescription. Currently the only formal indication for BzRA use is acute insomnia. Most sleep specialists far more often discontinue BzRA, than prescribe, them.

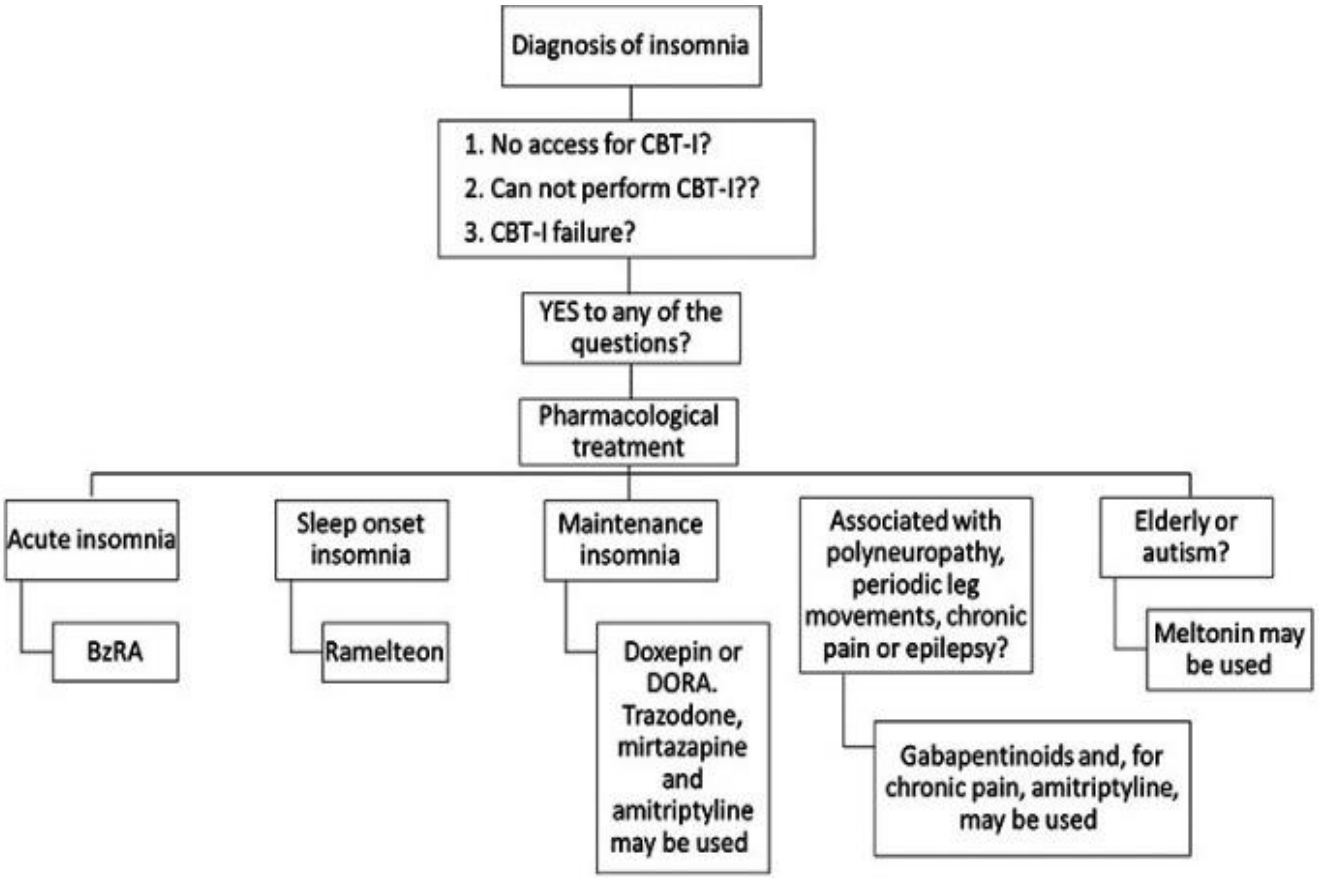
Different strategies for BZDs and BzRA taper can be used, and CBT-I may be used as an adjuvant therapy, regardless of the pharmacological regimen. The use of safer hypnotics is usually recommended.

Therefore, news about "old", better GABAA hypnotics, are not good. These drugs present risks that should be avoided, and restricted prescription must be the rule.[24]

WHAT ABOUT CURRENT HYPNOTIC DRUGS?[25]

Current strategy for pharmacological treatment of insomnia in Brazil is based on a publication by the Brazilian Sleep Association (Associação Brasileira do Sono).

Below a flowchart with current strategies to treat insomnia with CBT-I and the decision to use pharmacological treatment. BzRA are only recommended for acute insomnia, as explained earlier. Distinction between sleep-onset insomnia and maintenance insomnia defines drug selection



How Does Ayurveda Treat Insomnia and Sleep Disorders?[26]

Even though sleep is a vital component of our lives, it is frequently one of the first things to suffer when stressed or unwell. As a result, there may be a vicious cycle whereby insufficient sleep causes more stress and anxiety, which in turn causes even less sleep. Ayurveda may be beneficial if you are trying to get some rest but have been unsuccessfully battling insomnia or another sleep disorder.

It uses diet, lifestyle, and herbal remedies to restore harmony to the mind and body. Herbal remedies that induce a state of calm and relaxation are frequently used in this treatment.

Ashwagandha, Brahmi, and Gotu Kola are some Ayurvedic herbs commonly used to treat sleeplessness. Herbal supplements, teas, and oils are all viable delivery mechanisms for plants. Ashwagandha, in particular, has been shown to be effective in studies for lowering stress and enhancing sleep.

Ayurveda suggests changing one's routine. This includes not consuming caffeine after 2 p.m., following a soothing bedtime ritual, and sleeping in a cool, dark room.

By following these, one can finally start getting the quality sleep one needs and deserves.

Common Ayurvedic Remedies for Insomnia & Sleep Disorders[27]

Ayurvedic medicine holds that optimal health is attained when an individual's mental, physical, and spiritual selves are in harmony. The symptoms of insomnia and other sleep disorders can be treated with various Ayurvedic methods. Some common ones include

Herbal teas

Having an herbal tea right before bed can help calm one's nerves and put one to sleep. Teas made from chamomile, lavender, and passionflower are all excellent choices.

Aromatherapy
Diffusing or adding calming essential oils like lavender or chamomile to a warm bath can help one unwind and get a good night's sleep.
Ayurvedic herbs
Ayurveda recognizes a wide variety of herbs as effective remedies for sleeplessness. Brahmi, Ashwagandha, Shankhapushpi, Jatamansi, and Vacha are just a few of the more well-known ones. These can be taken in capsule form or as tea.
Yoga and meditation
These are good practices to try before bed because they help relax the body and mind for a good night's rest.
Lifestyle Changes Recommended By Ayurveda To Improve Sleep
Ayurveda may suggest several lifestyle adjustments to aid in getting a better night's rest. These include
Maintaining a calm, dark, and quiet bedroom devoid of electronic devices can help one sleep.
Developing and adhering to a regular pattern of sleeping throughout the night.
Avoid caffeine, alcohol and spicy foods in the evening.
Relaxing in a hot bath before bed.
Try some yoga or meditation right before bedtime to help one unwind.

Ayurveda's Guidelines for Diet & Nutrition[28]
Ayurvedic medicine approaches sleep problems from several angles, including dietary and nutritional adjustments, behavioral modifications, and the use of herbal remedies. The following are some general dietary and nutritional guidelines for the treatment of sleep disorders and insomnia
Eat fresh, whole foods that are easy to digest.
Avoid processed foods, alcohol, artificial additives, and caffeine.
Include a wide variety of fresh fruits and vegetables in your daily diet. Be sure to balance your diet with raw and cooked foods.
Relaxing in a hot bath before bed.
Get in eight glasses of water, fruit juice, herbal tea, soup, and stew daily.

Yoga Poses & Pranayama Techniques to Promote Restful Sleep[29]
Pranayama and yoga are two ayurvedic practices that can help with sleeplessness. Several yoga postures and breathing exercises (called pranayama) have been shown to aid in deep, rejuvenating sleep. Here are some of the most effective
Child's pose
This pose is excellent for relieving stress and anxiety while stretching the hips and lower back.
Corpse pose
This very calming pose helps to relax the mind and body.
Legs up the wall pose
This simple but effective pose helps to relieve tension in the legs and lower back and can also help to calm the mind.
Breath of fire
This powerful pranayama technique helps to energize and detoxify the body and promote deep breathing, which is calming and relaxing.

Alternate nostril breathing

It is an effective pranayama method for easing into slumber because it promotes a state of calm and relaxation by balancing the activity in the brain's left and right hemispheres.

Herbal Formulations Used In Treating Sleep Disorders[30]

Many herbal formulations can be used to treat insomnia and other sleep disorders, each with its unique set of benefits. Some of the most commonly used herbs in Ayurvedic medicine for treating sleep disorders include

Ashwagandha

This medicinal plant has been used for centuries in Ayurvedic medicine for its sedative effects. Stress and anxiety contribute to a lack of sleep, so it is frequently used to alleviate those conditions.[31]

Brahmi

Another herb with calming properties, Brahmi can be helpful in the treatment of sleep disorders. It is recommended for those who want to enhance their sleep quality and mental capacity because of its purported ability to enhance memory and cognitive function.

Shankhapushpi

Shankhapushpi is an herb traditionally used as a natural sedative. If you have insomnia, this may be the solution you've been looking for because it can help you fall asleep faster and stay asleep longer.[32]

Conclusion

Chronic insomnia is highly prevalent and affects approximately 30% of the general population. Insomnia impairs cognitive and physical functioning and is associated with a wide range of impaired daytime functions across a number of emotional, social, and physical domains. Compared with good sleepers, people with persistent sleep disturbances are more prone to accidents, have higher rates of work absenteeism, diminished job performance, decreased quality of life, and increased health care utilization. Various risk factors associated with increased prevalence of chronic insomnia include older age, female gender, and comorbid medical and psychiatric conditions. Approximately 40% of adults with insomnia also have a diagnosable psychiatric disorder most notably depression. A comorbid psychiatric disorder such as depression or anxiety may be a consequence of as well as a risk factor for disrupted sleep. Recent research suggests that insomnia and depression share common pathological processes that make individuals vulnerable to both conditions specifically, abnormal regulation of CRF. CRF regulation has been extensively implicated in the pathogenesis of depression, and hyperactivity of the HPA axis and CRF neurons could account for the hyperarousal and sleep disturbances associated with chronic insomnia. Studies that improve the knowledge of the neurobiological mechanisms controlling regulation of sleep homeostasis, circadian rhythms, physiological hyperarousal, genetics, stress, and cognition are needed to adequately evaluate the causes and mechanisms of insomnia. Effective pharmacologic and behavioral interventions to treat insomnia rely on accurate neurobehavioral and neurobiological information.

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